

1005T20" 15460550

ATG GAA ATA TTC GGA AAG ACC TTC AGA GAG GGA AGA TTC GTT CTC AAA GAG AAA AAC TTC ACA GTT GAG TTC
GCG GTG GAG AAG ATA CAC CTT GGC TGG AAG ATC TCC GGC AGG GTG AAG GGA AGT CCG GGA AGG CTT GAG GTT
CTT CGA ACG AAA GCA CCG GAA AAG GTA CTT GTG AAC AAC TGG CAG TCC TGG GGA CCG TGC AGG GTG GTC GAT
GCC TTT TCT TTC AAA CCA CCT GAA ATA GAT CCG AAC TGG AGA TAC ACC GCT TCG GTG CCC GAT GTA CTT
GAA AGG AAC CTC CAG AGC GAC TAT TTC GTG GCT GAA CTT GTG GCA TAC CTC GAA TAT TTC GAT GTC GAG TTC GAC
GCA CAT CCT TTC TTT GCT GAA GAT GGG GAA CTT GTG GCA TAC CTC GAA TAT TTC GAT GTC GAG TTC GAC
GAC TTT GTT CCT CTT GAA CCT CTC GTT GTA CTC GAG GAT CCC AAC ACA CCC CTT CTT CTG GAG AAA TAC GCG
GAA CTC GTC GGA ATG GAA AAC AAC GCG AGA GTT CCA AAA CAC ACA CCC ACT GGA TGG TGC AGC TGG TAC CAT
TAC TTC CTT GAT CTC ACC TGG GAA GAG ACC CTC AAG AAC CTG AAG CTC GCG AAG AAT TTC CCG TTC GAG GTC
TTC CAG ATA GAC GAC GCC TAC GAA AAG GAC ATA GGT TTC ATC CCG GGC ATA TGG ACC GCC CCG TTC CCA TCG GTG
GAA GAG ATG GCA AAA GTT ATA GCG GAA AAC GGT TTC ATC CCG GGC ATA TGG ACC GCC CCG TTC CCA TCG GTG
GAA ACC TCG GAT GTA TTC AAC GAA CAT CCG GAC TGG GTA GTG AAG GAA AAC GGA GAG CCG AAG ATG GCT TAC
AGA AAC TGG AAC AAA AAG ATA TAC GCC CTC GAT CTT TCG AAA GAT GAG GTT CTC GAT TCG CTT TTC GAT CTC
TTC TCA TCT CTG AGA AAG ATG GGC TAC AGG TAC TTC AAG ATC GAC TTT CTC TTC GCG GGT GCC GTT CCA GGA
GAA AGA AAA AAG AAC ATA ACA CCA ATT CAG GCG TTC AGA AAA GGG ATT GAG ACG ATC AGA AAA GCG GTG GGA
GAA GAT TCT TTC ATC CTC GGA TGC GGC TCT CCC CTT CTT CCC GCA GTG GGA TGC GTC GAC GGG ATG AGG ATA
GGA CCT GAC ACT GCG CCG TTC TGG GGA CAA CAT ATA GAA GAC AAC GGA GCT CCC GCT GCA AGA TGG GCG CTG
AGA AAC GCC ATA ACG AGG TAC TTC ATG CAC GAC AGG TTC TGG CTG AAC GAC CCC GAC TGT CTG ATA CTG AGA
GAG GAG AAA ACG GAT CTC ACA CAG AAG GAA AAG GAG CTC TAC TCG TAC ACG TGT GGA GTG CTC GAC AAC ATG
ATC ATA GAA AGC GAT GAT CTC TCG CTC GTC GTC GAT CAT GGA AAA AAG GTT CTG AAA GAA ACG CTC GAA CTC
CTC GGT GGA AGA CCA CCG GTT CAA AAC ATC ATG TCG GAG GAT CTG AGA TAC GAG ATC GTC TCG TCT GGC ACT
CTC TCA GGA AAC GTC AAG ATC GTG GTC GAT CTG AAC AGC AGA GAG TAC CAC CTG GAA AAA GAA GAG AAC TCC
TCC CTG AAA AAA AGA AGA GTC AAA AGA GAA GAC GGA AGA AAC TTC TAC GAA GAG GGT GAG AGA GAA
TGA

FIG. 1A (SEQ ID NO:1)

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Met Glu Ile Phe Gly Lys Thr Phe Arg Glu Gly Arg Phe Val Leu Lys Glu Lys Asn Phe Thr Val Glu Phe
Ala Val Glu Lys Ile His Leu Gly Trp Lys Ile Ser Gly Arg Val Lys Gly Ser Pro Gly Arg Leu Glu Val
Leu Arg Thr Lys Ala Pro Glu Lys Val Leu Val Asn Asn Trp Gln Ser Trp Gly Pro Cys Arg Val Val Asp
Ala Phe Ser Phe Lys Pro Pro Glu Ile Asp Pro Asn Trp Arg Tyr Thr Ala Ser Val Val Pro Asp Val Leu
Glu Arg Asn Leu Gln Ser Asp Tyr Phe Val Ala Glu Glu Gly Lys Val Tyr Gly Phe Leu Ser Ser Lys Ile
Ala His Pro Phe Phe Ala Val Glu Asp Gly Glu Leu Val Ala Tyr Leu Glu Tyr Phe Asp Val Glu Phe Asp
Asp Phe Val Pro Leu Glu Pro Leu Glu Val Val Leu Glu Asp Pro Asn Thr Pro Leu Leu Glu Lys Tyr Ala
Glu Leu Val Gly Met Glu Asn Ala Arg Val Pro Lys His Thr Pro Thr Gly Trp Cys Ser Trp Tyr His
Tyr Phe Leu Asp Leu Thr Trp Glu Glu Thr Leu Lys Asn Leu Lys Ala Lys Asn Phe Pro Phe Glu Val
Phe Gln Ile Asp Asp Ala Tyr Glu Lys Asp Ile Gly Asp Trp Leu Val Thr Arg Gly Asp Phe Pro Ser Val
Glu Glu Met Ala Lys Val Ile Ala Glu Asn Gly Phe Ile Pro Gly Ile Trp Thr Ala Pro Phe Ser Val Ser
Glu Thr Ser Asp Val Phe Asn Glu His Pro Asp Trp Val Val Lys Glu Asn Gly Glu Pro Lys Met Ala Tyr
Arg Asn Trp Asn Lys Lys Ile Tyr Ala Leu Asp Leu Ser Lys Asp Glu Val Leu Asn Trp Leu Phe Asp Leu
Phe Ser Ser Leu Arg Lys Met Gly Tyr Arg Tyr Phe Lys Ile Asp Phe Leu Phe Ala Gly Ala Val Pro Gly
Glu Arg Lys Lys Asn Ile Thr Pro Ile Gln Ala Phe Arg Lys Gly Ile Glu Thr Ile Arg Lys Ala Val Gly
Glu Asp Ser Phe Ile Leu Gly Cys Gly Ser Pro Leu Leu Pro Ala Val Gly Cys Val Asp Gly Met Arg Ile
Gly Pro Asp Thr Ala Pro Phe Trp Gly Glu His Ile Glu Asp Asn Gly Ala Pro Ala Arg Trp Ala Leu
Arg Asn Ala Ile Thr Arg Tyr Phe Met His Asp Arg Phe Trp Leu Asn Asp Pro Asp Cys Leu Ile Leu Arg
Glu Glu Lys Thr Asp Leu Thr Gln Lys Glu Lys Glu Leu Tyr Ser Tyr Thr Cys Gly Val Leu Asp Asn Met
Ile Ile Glu Ser Asp Leu Ser Leu Val Arg Asp His Gly Lys Lys Val Leu Lys Glu Thr Leu Glu Leu
Leu Gly Gly Arg Pro Arg Val Gln Asn Ile Met Ser Glu Asp Leu Arg Tyr Glu Ile Val Ser Ser Gly Thr
Leu Ser Gly Asn Val Lys Ile Val Val Asp Leu Asn Ser Arg Glu Tyr His Leu Glu Lys Glu Gly Lys Ser
Ser Leu Lys Lys Arg Val Val Lys Arg Glu Asp Gly Arg Asn Phe Tyr Phe Tyr Glu Glu Gly Arg Glu

FIG. 1B (SEQ ID NO: 2)

09909464.071901

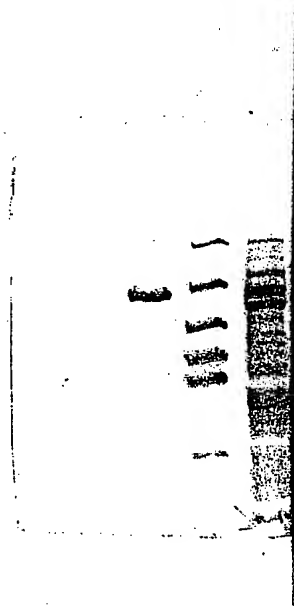


FIG. 2

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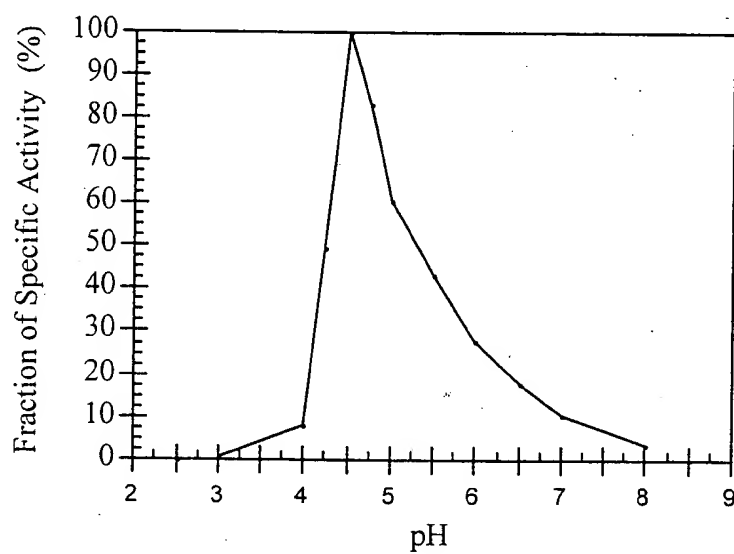


FIG. 3

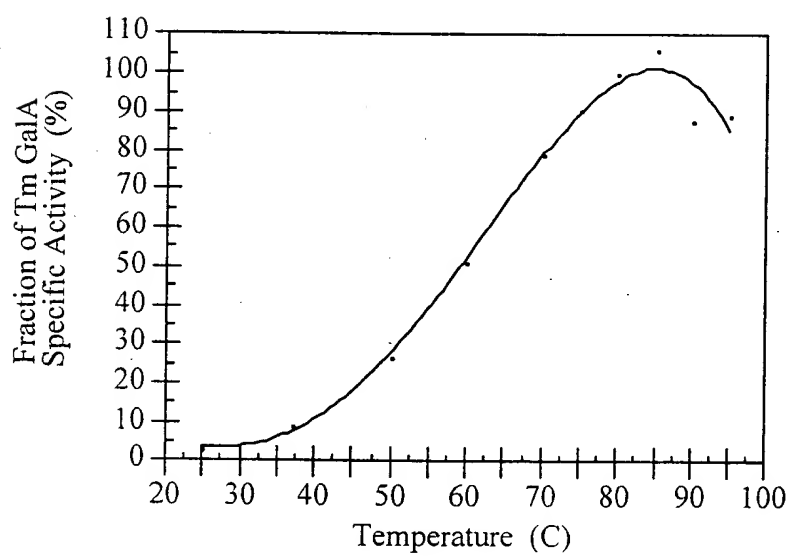


FIG. 4

The diagram illustrates the chemical structures of four disaccharides and their precursors, showing their increasing complexity and branching. The structures are arranged vertically, with arrows indicating the direction of synthesis or degradation.

- Sucrose:** A disaccharide composed of α -D-glucopyranose and β -D-fructofuranose linked by an $\alpha(1\rightarrow2)\beta$ glycosidic bond.
- Raffinose:** A trisaccharide composed of sucrose and α -D-glucopyranose linked by an $\alpha(1\rightarrow6)$ glycosidic bond.
- Stachyose:** A tetrasaccharide composed of raffinose and α -D-glucopyranose linked by an $\alpha(1\rightarrow6)$ glycosidic bond.
- Verbascose:** A pentasaccharide composed of stachyose and α -D-glucopyranose linked by an $\alpha(1\rightarrow6)$ glycosidic bond.

The diagram shows the structures of these molecules, with the labels "Sucrose", "Raffinose", "Stachyose", and "Verbascose" placed next to their respective structures. Arrows indicate the direction of synthesis or degradation.

FIG. 5

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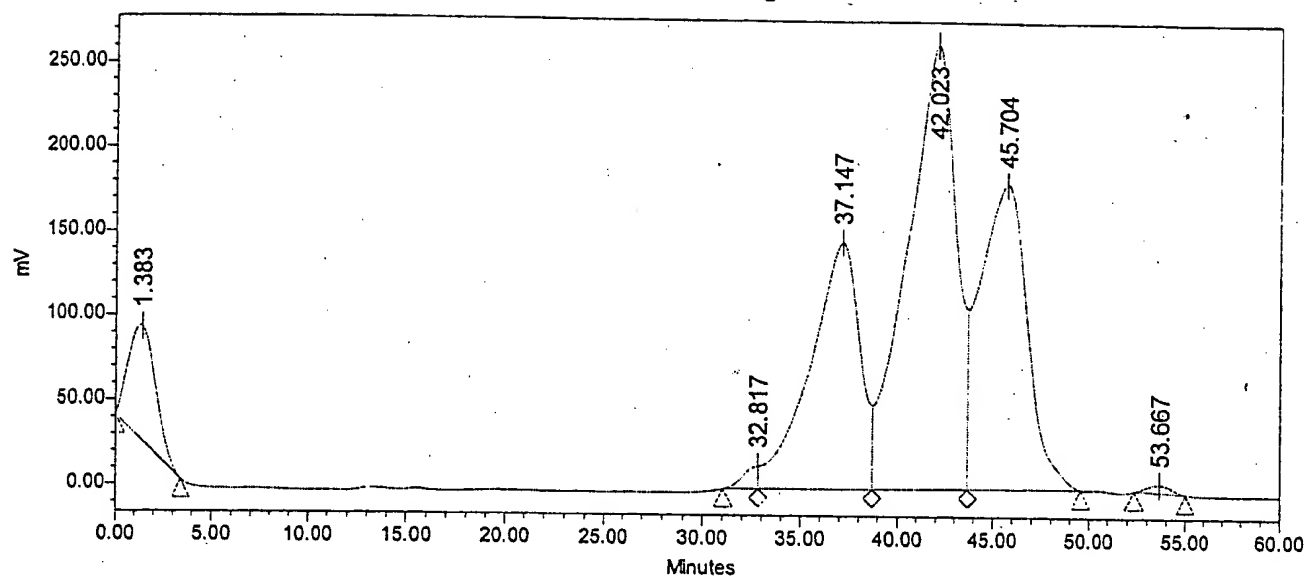


FIG. 6A

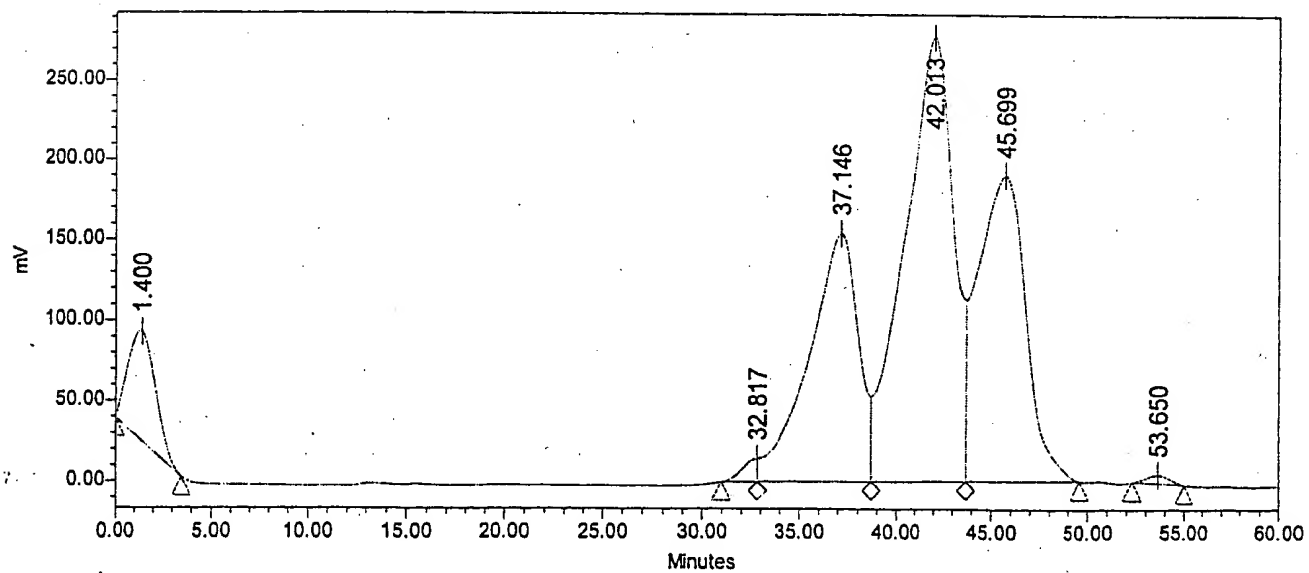


FIG. 6B

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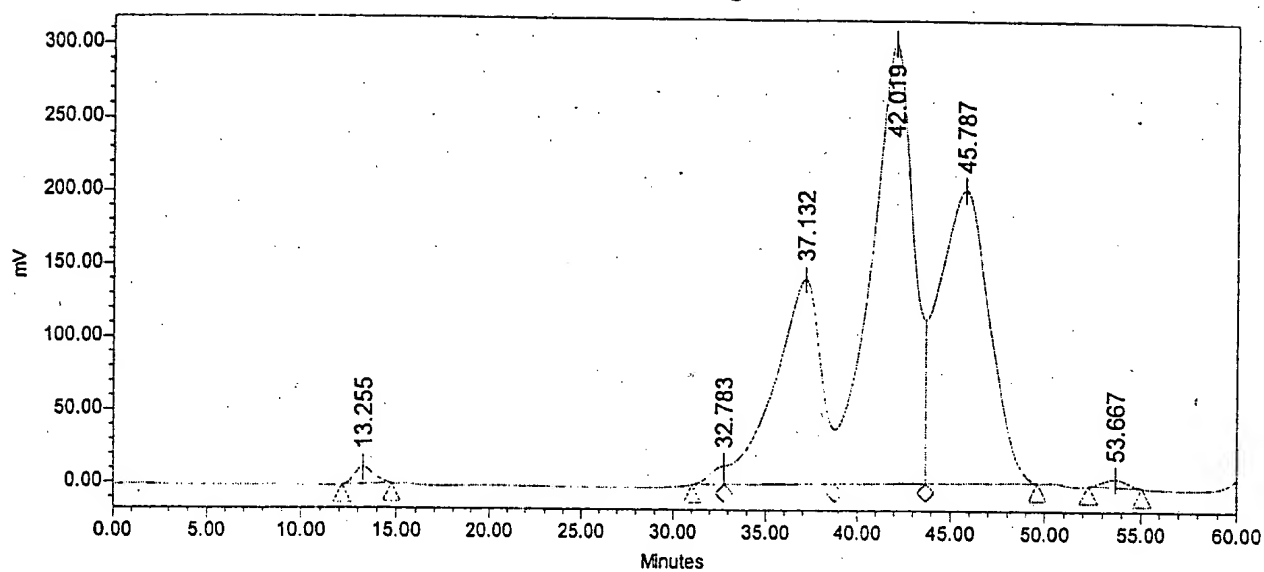


FIG. 6C

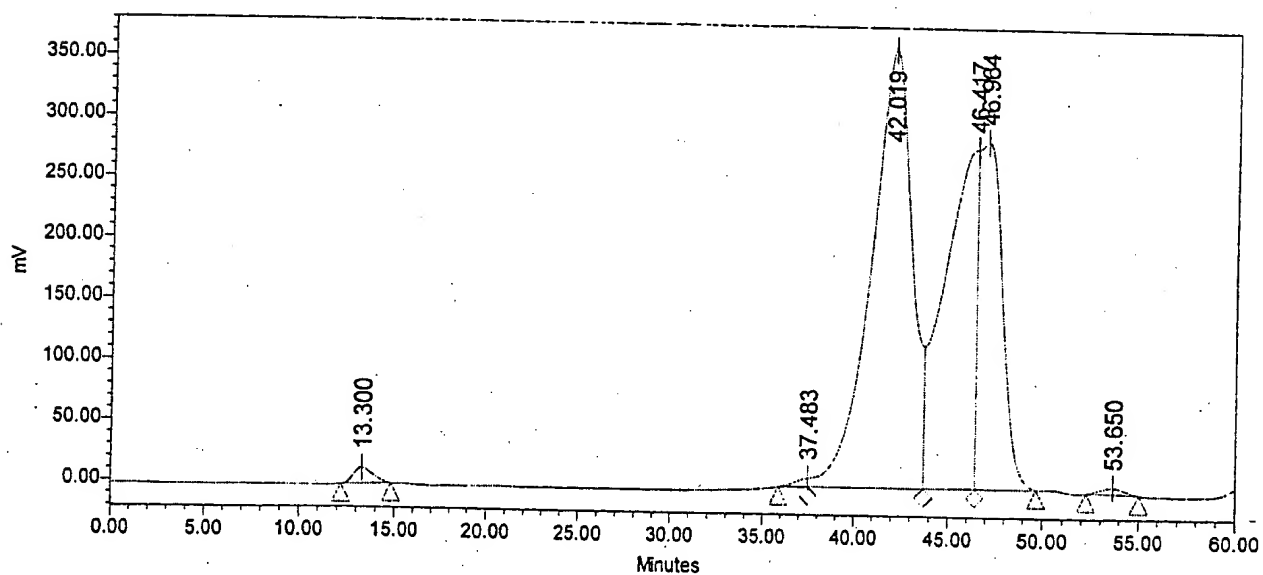


FIG. 6D

Soybean Meal Processing

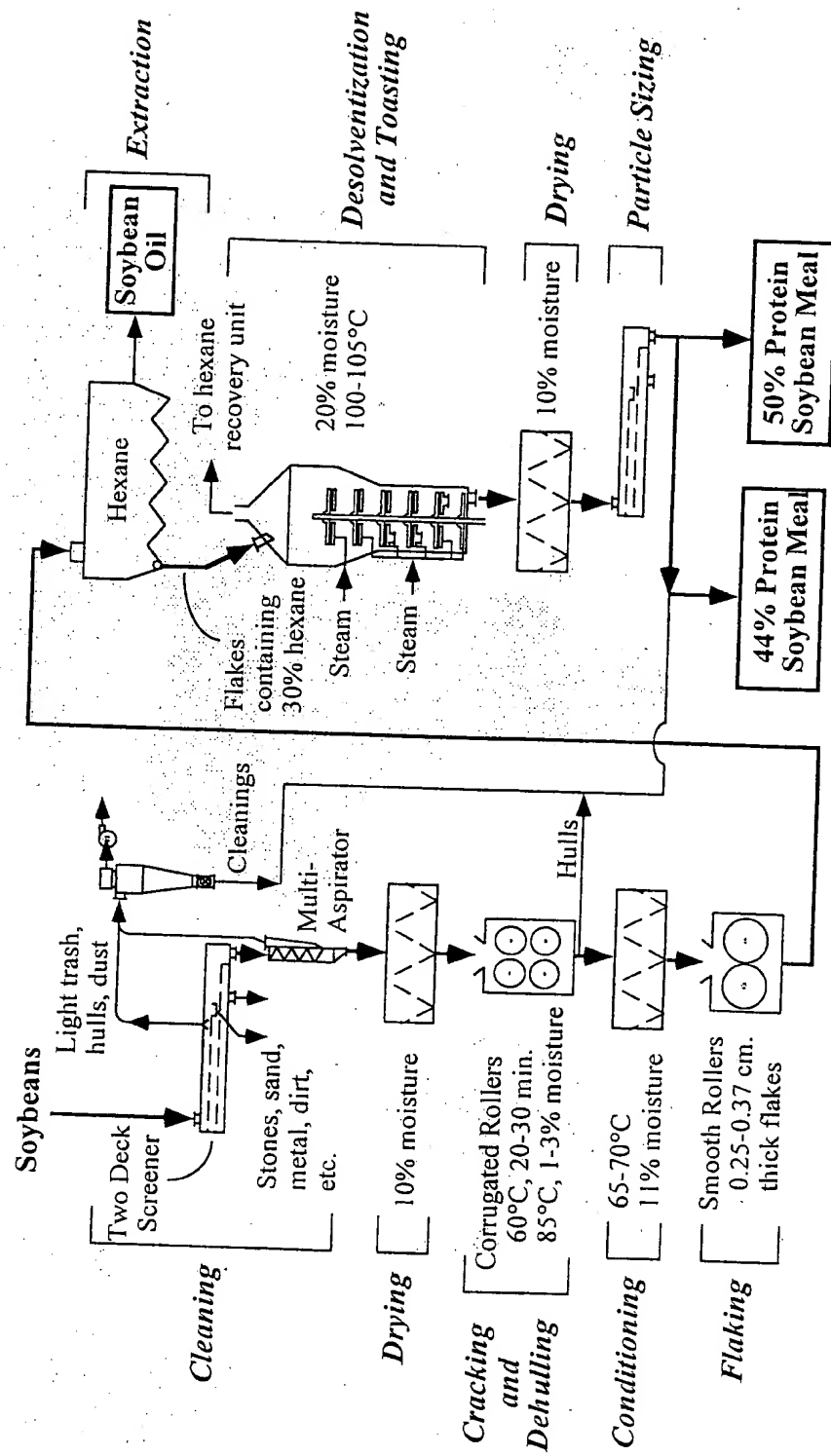


FIG.7